

# Serious Work Underway at Caltrans to Combat Drought

With California facing one of the worst droughts in recorded history, Governor Jerry Brown declared a drought State of Emergency in January 2014 and directed state officials to take all necessary actions to prepare for water shortages. He called for all state agencies to reduce their water use by 20 percent, and in April 2015 added an additional mandate ordering all urban water users to reduce their water use by 25 percent. In 2014, Caltrans took it one step further, setting a goal to reduce its water use for irrigation and landscaping by 50 percent and stepping up its ongoing work to curb all water use.

As one of the state's largest departments, responsible for 30,000 acres of landscaping, any conservation efforts by Caltrans are more than "a drop in the bucket." In April, the California Department of General Services reported that state agencies used 23 percent less water in 2014 compared to 2013. For all state government, water use fell from 19.4 billion gallons in 2013 to 14.9 billion gallons in 2014, and Caltrans accounted for more than half of the water conserved by state agencies.

Due to dramatic changes already underway to its irrigation practices and landscaping choices, Caltrans reduced its water consumption by an estimated 32 percent since last year, already exceeding Governor Brown's 25 percent reduction order. In 2014, the department used 5 billion gallons of water for roadside irrigation, down from 7.4 billion in 2013, a decrease in 2.4 billion gallons.

Year	Usage (in billions of gallons)
2010	6.96
2011	6.40
2012	7.52
2013	7.41
2014	4.99

**\$3.8M in savings in 2014**

**-32%**

This impressive decrease in water use is part of a general trend by the department, underway since the drought of 1976–78, to actively design and manage sustainable roadsides to reduce water consumption. Caltrans is using roughly half the volume of water to irrigate 33 percent more acreage of landscaping than it did in 1992. This is in part due to a significant shift to choosing plants that require less water and in implementing efficient irrigation systems. Caltrans' Landscape Architecture Program even developed a tool, [TransPLANT](#), to guide fellow landscape architects and landscape designers in choosing plants and grasses best appropriate to their region.

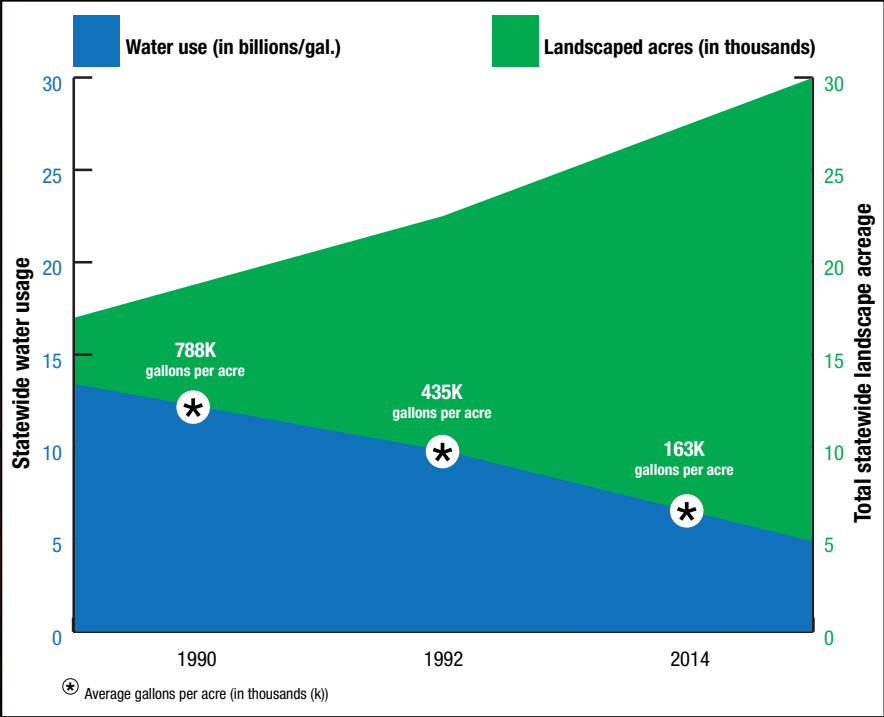
## “Smart” Controller Upgrades

Caltrans reduced use largely by managing water application through 1,250 new “smart” irrigation controllers, which can reduce water usage as much as 50 percent. This technology automatically adjusts watering to weather conditions and soil moisture and alerts water managers of breaks in the system. These devices can receive weather reports via satellite, much as a smart phone does, and adjust watering according to the forecast. They also monitor soil moisture and apply water only when necessary to keep plants healthy. Additionally, the controllers will shut off and notify the water manager if the system malfunctions or leaks.

Caltrans installed these controllers on about 64 percent of the department's irrigation systems, and they were part of a \$47 million investment Caltrans made to upgrade or repair its irrigation systems statewide. At the beginning of April 2015, Caltrans secured an additional \$28 million in emergency funding to install more of these controllers throughout the state.



Water Reduction 1990–2014





## Prioritizing Projects and Other Efforts Underway

Caltrans is also postponing many landscaping projects throughout the state, narrowing down to only the most essential projects. Statewide, it has postponed 34 landscaping projects, 26 that would have been planted this year. The department has also eliminated watering grass, including at all state rest stops, unless recycled water is used.

In addition, Caltrans is working closely with local water providers to ensure the department complies with all local conservation plans and adheres to any additional local actions or reduction requirements. The department received almost \$800,000 in local water conservation rebates for its efforts to reduce water use and upgrade equipment.

As it looks for more ways to cut water, Caltrans must balance the need to protect the state's \$1.4 billion investment in highway planting. The plants along the roadway serve valuable functions such as reducing erosion, preventing graffiti, protecting stormwater quality, serving as a firebreak, and absorbing pollutants from the air.

## Streamlining Water Use Tracking

Another hurdle for Caltrans has been updating and improving a cumbersome and inefficient accounting and billing system to better track its water use. Each year, Caltrans receives more than 40,000 water bills from 250 water purveyors. To further complicate matters, the unit measures for water use on these bills can vary between seven different measurements. Each of these bills must also be manually typed into the electronic accounting system. With the installation of smart irrigation controllers throughout the state that automatically record water use and upgrades to its accounting system, Caltrans will soon be able to provide more timely and accurate water consumption information.

## Water Conservation and Drought Action Plan

While Caltrans has been successful at cutting water use through water-sensitive plantings and smarter irrigation practices, there is always room for improvement. To be a good steward of California's limited water resources, the department kicked off a drought action plan in February 2014. This plan lists 15 different actions for the department to take, including using recycled water for irrigation as much as possible and assigning water managers for each district throughout the state. Many of these are well underway and can be tracked on [Caltrans' Water Conservation](#) webpage.

As drought conditions in California continue over the next months and possibly longer, Caltrans is preparing to carry out further and more drastic ways to increase its water conservation efforts. Caltrans will continue to do its part to reduce water use and help fellow Californians get through the drought with as little impact as possible.

Source: Division of Design

## Caltrans Saving Water Since 1990

**In 1990, Caltrans used 13.4 billion gallons of water to irrigate 17,000 landscaped acres.**



**In 2014, Caltrans used 4.9 billion gallons of water to irrigate 30,000 landscaped acres. Over the last 24 years, Caltrans'**

